

REMARKS

This is submitted in Response to the outstanding Office Action dated February 17, 2010. The Office Action has been reviewed, and reconsideration of the application and allowance thereof are requested based on the following remarks.

Claims 1-9 and 11-24 stand rejected under 35 USC §103 as being unpatentable over Hayes, U.S. Patent No. 4 807 647 in view of Yoshida, U.S. Patent No. 6 206 007.

Claim 1 is directed to a tobacco smoke filter having a tar retention of at most 50%, comprising a relatively high draw resistance downstream filtering plug of at most 50% tar retention, a relatively low draw resistance upstream filtering plug of at most 22% tar retention spaced longitudinally upstream from the downstream filtering plug, and a filter wrapper engaging around and joining the spaced plugs to define a cavity therebetween, the draw resistance of the downstream filtering plug being greater than the draw resistance of the upstream filtering plug. (emphasis added)

The filter defined in Claim 1 achieves improved performance over conventional filters because it gives satisfactory taste and the draw performance, while providing desirably low CO delivery (less than 5 mg per cigarette, compared with 6 mg per cigarette of conventional filters) and desirably low CO/tar delivery ratio (less than 0.7 compared with 1 for conventional filters).

Hayes teaches a cigarette filter including a first core component 2, a second core component 4, and an air-permeable plugwrap 6. The first core component 2 is air-permeable and of a relatively high pressure drop, and the second core component 4 is air-permeable and of a relatively low pressure drop. The high pressure drop core component 2 is located towards the tobacco rod 8 and thus is the upstream component, and the second core component 4 is the downstream component.

Further, Hayes teaches in column 2, lines 36-42 that the first core component 2 has an enclosed pressure drop of over 50 mm water gauge (Wg) and the second core component 4 has an

enclosed pressure drop of less than 50 mm Wg (see also Table 2 in Hayes). Thus, Hayes teaches that the downstream core component 4 has a lower draw resistance than the upstream core component, which is the opposite of the filter of Claim 1 which recites that the draw resistance of the downstream filtering plug is greater than the draw resistance of the upstream filtering plug.

Of particular significance is that Hayes specifically states the desirability of the above arrangement in column 2, line 62, through column 3, line 24. In this regard, the Hayes filter achieves a high degree of air-dilution to give good reduction of CO without reducing taste and pressure drop of the filter cigarette to unacceptably low levels. Hayes also states that various prior filter structures have aimed at such performance, but "the filter of the present invention can achieve it to an improved degree by use of a very high pressure drop, low retention upstream core component in combination with a low pressure drop, low retention downstream core component...". (emphasis added) Thus, Hayes teaches away from providing an upstream (tobacco side) filtering plug having a low draw resistance or low pressure drop. Thus, one of skill in the art would not be motivated to rearrange the locations of the core components in Hayes by reference to Hayes alone or arguably by reference to Hayes and any other prior art reference, since Hayes teaches that the specific core component arrangement disclosed and claimed is critical and required to achieve the conventionally irreconcilable objectives of a high degree of air dilution to give good reduction of CO, without reducing the taste and pressure drop of the cigarette to unacceptably low levels.

Nonetheless, the Examiner cites Yoshida in order to allegedly cure the above deficiency of Hayes. Yoshida is directed to a cigarette with a dual-structure filter. Specifically, Yoshida teaches filter elements 13 and 14 which are individually covered with wrappers 17 and 18 to form cylindrical plugs, and are then wrapped together with tip

paper 19. Yoshida does appear to teach that the air-permeation resistance of the downstream filter element 14 is greater than that of the upstream filter element 13. However, one of ordinary skill in the art would not be motivated, as the Examiner suggests, to modify the Hayes arrangement in view of this teaching in Yoshida since Hays specifically emphasizes and requires the exact opposite configuration from Yoshida, and as claimed in Claim 1. Thus, while it may be possible to modify the Hayes configuration, there is nonetheless no motivation to do so given the performance which Hays is striving to achieve with his specific component arrangement. It is accordingly submitted that the Examiner is utilizing an improper hindsight analysis to reject the instant claims. Claim 1 is accordingly believed allowable over Hayes and Yoshida, since Hayes specifically teaches and requires a high pressure drop upstream core component and a low pressure drop downstream core component. Thus, to combine Hayes and Yoshida as the Examiner suggests requires one to wholly disregard the primary teaching in Hayes, which is believed improper.

Further, the overall emphasis in Yoshida is on dual-structure filters, which are a different type of structure than the triple cavity filter taught in Hayes and shown in Figure 4 thereof. In this regard, triple cavity filters are complicated to manufacture, because it is necessary to place the individual rods or components (i.e. the tobacco rod and the filters) at the appropriate spacing from one another so as to allow formation of the cavity therebetween, and to maintain this spacing while the plug-wrap is wrapped around the arranged components and also while the cutting process is taking place. Further, a stiffer and more costly plug-wrap is required in a triple cavity filter so as to maintain the cavity configuration of the filter. A dual-filter arrangement, such as that primarily taught in Yoshida, involves a much simpler and less-expensive manufacturing process, since no particular spacing need be maintained as the two filters are placed in abutting or contacting relationship

with one another as described in column 7, lines 44 and 45 of Yoshida. The use of a sturdier plug-wrap or over-wrap is also not necessary in a dual-filter arrangement.

The teachings in Yoshida that pertain to the upstream filter element having a lower draw resistance than the downstream filter element are all believed to relate to a dual-filter arrangement (see, for example, column 8, line 64 through column 9, lines 1-7). Further, the examples presented in Yoshida are also believed to pertain to dual-filter arrangements. Additionally, Yoshida mentions at column 25, lines 29-36 that the filter elements may have other filter structures such as a channel filter, a double concentric filter, and a constructed filter, and that the dual-structure filter cigarettes can achieve similar effects regardless of the type of filters used in the dual structure. This passage is believed to indicate that the disclosed draw resistance of the upstream and downstream filter elements and the filter performance relate to dual-structure filter arrangements, and not triple cavity arrangements as in Hayes and according to the instant invention.

It is noted that column 7, lines 44-50 of Hayes mention that the filter elements 13 and 14 in Hayes can be in contact with one another, or spaced apart from one another in the lengthwise direction. In the spaced-apart configuration, the gap formed between the first and second filter elements 13 and 14 can be loaded with activated carbon, or the first filter element 13 can be loaded with activated carbon. The first embodiment mentioned in this passage is a dual-structure arrangement as discussed above (i.e. the filter elements contact one another). However, the additional alternative embodiments mentioned in this passage are triple cavity structures, and thus are not dual-filter arrangements. One of ordinary skill in the art would readily appreciate that the teachings in Yoshida regarding the draw resistance of the upstream and downstream filter arrangements as cited by the Examiner pertain to a dual-filter arrangement, and not to a

triple cavity arrangement. Thus, while Yoshida does appear to mention cavity-type filter arrangements, the teaching in Yoshida pertaining to a downstream component with a higher draw resistance than an upstream component are believed to relate only to a dual-filter type arrangement.

Additionally, given the triple-cavity filter arrangement taught in Hayes and the dual-structure filter arrangement taught in Yoshida, it is submitted that one would be motivated to develop a product incorporating a dual-structure filter, since he or she would understand that the manufacturing process associated therewith would be less complicated and less expensive overall in comparison with a triple-cavity filter arrangement. That is, the skilled person would not modify a cavity-type filter arrangement in view of teachings pertaining to a dual-filter arrangement, and instead would be motivated to seek a solution involving a dual-filter arrangement.

To summarize, one of ordinary skill in the art: 1) would not modify Hayes as suggested by the Examiner, since Hayes specifically teaches and emphasizes a filter arrangement with the exact opposite arrangement than that of the invention as claimed in Claim 1; 2) would not be motivated to reverse the filter configuration taught in Hayes in view of Yoshida or arguably any other reference because of the criticality that Hayes places on his particular component configuration; 3) would not be motivated to modify the filter configuration taught in Hayes in view of Yoshida, since Yoshida appears to only teach a higher draw resistance downstream filter element and a lower draw resistance upstream filter element in relation to dual-structure filters and not triple-cavity filter structures as in Hayes and in accordance with the invention recited in Claim 1; and 4) would not be motivated to modify a cavity-type filter arrangement in view of a dual-structure filter arrangement, and if anything, he or she would be motivated to pursue a dual-filter arrangement since same

are less complicated and less costly than cavity-type filter arrangements.

Independent Claims 17 and 18 are directed to a filter cigarette and a multiple length filter rod, respectively, and recite the features of the filter in Claim 1. Therefore, Claims 17 and 18 are also believed to be allowable over Hayes for the same reasons as presented above relative to Claim 1.

Claims 2-9, 11-15 and 19-24 depend upon what are believed to be allowable Claims 1, 17 or 18, and as such, are believed allowable therewith.

Claims 15 and 18 stand rejected under 35 USC §103, as being unpatentable over Hayes '647 in view of Yoshida '007 and Banerjee, U.S. Patent No. 5 839 449. Claim 15 depends upon what is believed to be an allowable Claim 17, and as such, is believed allowable therewith. Also, Claim 18 is directed to a multiple length filter rod comprising a filter including the features of the filter recited in Claim 1. Since neither Yoshida nor Banerjee cures the deficiencies of Hayes as discussed above relative to Claim 1, Claim 18 is believed allowable for similar reasons as presented above relative to Claim 1.

For the above reasons, reconsideration of the application and allowance thereof are respectfully requested.

Respectfully submitted,



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